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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/653,821	09/03/2003	Nathan Lee Gray	1171/41357/134	4123
279 7590 03/18/2008 Trexler, Bushnell, Giangiorgi, Blackstone & Marr, Ltd. 105 West Adams Street Suite 3600 Chicago, IL 60603			EXAMINER HOOK, JAMES F	
			ART UNIT 3754	PAPER NUMBER
			MAIL DATE 03/18/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/653,821

Applicant(s)

GRAY, NATHAN LEE

Examiner

James F. Hook

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dryden (258) in view of Hughes and Gray. The patent to Dryden discloses the recited limb for a breathing circuit comprising a very thin walled conduit as seen in figure 4, a first connector 32, a second connector 13, an elongate reinforcing member 31 lying freely within the thin walled conduit along a slightly torturous path as seen in figure 4 where the reinforcing member is hollow which passes through the two connectors in a blind manner, the member is small and too small for gas delivery to the patient but large enough to be used as a feedback conduit, from one end of the conduit to the other end and connected with the first and second connectors, where the connectors are provided with bumps which are a rib for engagement with a helical rib of the breathing conduit, a shoulder formed by the rib, where the reinforcing member 31 would inherently provide some reinforcement to the duct and would do so to some

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degree against contraction. The patent to Dryden discloses all of the recited structure with the exception of having the reinforcing element non-torturous and the connectors having helical protrusions and recess for a securing collar. It is considered old and well known in the art to provide a recess for a securing collar on a connector and such would be an obvious choice of mechanical expedients over a connector not provided with one, where such would prevent failure. The patent to Hughes discloses that it is old and well known in the art to form hollow reinforcement member 18 to be non-torturous when provided in a thin walled conduit 12 provided with a helical rib. It would have been obvious to form the ribs on the connectors of helical ribs to allow for a helically corrugated pipe to connect thereto and to form the tube in a non-torturous manner as suggested by Hughes as such is an alternate embodiment for hollow reinforcement elements in thin walled tubes and such would allow for a simpler construction thereby saving money using less materials and to allow for faster connection of the ends to the hose saving on manufacturing costs. The patent to Gray teaches that it is old and well known in the art to form two flexible layers 20,30 with a helical reinforcement 40 for use in conveying air, where such can be made having a thickness of 0.00055 inches which converts to 13.97 microns, where it is not clear whether this is the actual thickness of the entire conduit or of one of the two layers, however two layers would equate to almost 28 microns in thickness, which is less than a wall thickness of 50 microns. It would have been obvious to one skilled in the art to modify the tube in Dryden to have walls of any thickness desired including less than 50 microns as suggested by Gray where such sets forth known equivalent thicknesses of hoses of the same structure and

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for the same type of use, and where such would provide for a lighter hose if thickness were restricted.

Claims 1, 2, 5, 7, 8, 14-16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darling in view of Gray. The patent to Darling discloses the recited limb for a breathing circuit comprising a very thin walled conduit as seen in figure 1, a first connector 42, a second connector 44, an elongate reinforcing member 24 lying freely within the thin walled conduit along a non torturous path as seen in figure 1, from one end of the conduit to the other end and connected with the first and second connectors, the reinforcing member is solid and substantially circular in cross section and two ends, the reinforcing member contains a resistance heating element 20, cords 22 are also provided which are non-elastic within the reinforcing member which would make it resilient and not plastically deform, and the method of providing such is also set forth. The patent to Darling discloses all of the recited structure with the exception of various dimensional and stiffness values for the elements, however, such is considered merely a choice of mechanical expedients to use routine experimentation to arrive at optimum values as such only requires routine skill in the art to optimize values using routine experimentation and choices of mechanical expedients. The patent to Gray teaches that it is old and well known in the art to form two flexible layers 20,30 with a helical reinforcement 40 for use in conveying air, where such can be made having a thickness of 0.00055 inches which converts to 13.97 microns, where it is not clear whether this is the actual thickness of the entire conduit or of one of the two layers,

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however two layers would equate to almost 28 microns in thickness, which is less than a wall thickness of 50 microns. It would have been obvious to one skilled in the art to modify the tube in Darling to have walls of any thickness desired including less than 50 microns as suggested by Gray where such sets forth known equivalent thicknesses of hoses of the same structure and for the same type of use, and where such would provide for a lighter hose if thickness were restricted.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Darling in view of Gray as applied to claims 1, 2, 5, 7, 8, 14-16, and 19 above, and further in view of Dickenson. The patent to Darling as modified disclose all of the recited structure with the exception of utilizing a positive temperature coefficient heating element. The patent to Dickenson discloses that it is old and well known in the art to provide hoses with heating elements including resistance type, and positive temperature coefficient heating elements as such are equivalent types of heaters used in hoses. It would have been obvious to one skilled in the art to substitute a positive temperature coefficient heating element for the resistance heating element of Darling as modified, as suggested by Dickenson as such are taught to be equivalent types of heaters for hoses and such would provide different benefits to a standard resistance heating element thereby making the hose more useful and thereby save money.

Claims 17, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darling in view of Gray as applied to claims 1, 2, 5, 7, 8, 14-16, and 19 above, and further in view of Moseley. The patent to Darling as modified discloses all of the recited structure with the exception of providing a cover layer over the spiral

reinforcement that is made of a braided sheath of PET fibers. The patent to Moseley discloses that it is old and well known to form corrugated conduits of layers over spiral reinforcing wires where the layers can be formed of woven or braided PET yarn. It would have been obvious to one skilled in the art to provide an outer sheath formed of braided PET fibers to the hose of Darling as modified, as suggested by Moseley where such is an alternative material used over spiral reinforced conduits to protect them from damage and thereby reduce replacement costs and save money.

### ***Response to Arguments***

Applicant's arguments filed December 7, 2007 have been fully considered but they are not persuasive. Many of these arguments were covered in the interview of August 8, 2007 as covered in applicant's synopsis at the end of the remarks section, however, for clarity the examiner will attempt to cover any arguments that were not previously covered or at least to comment on as many of the arguments as believed to be new or different from the August 8, 2007 interview. With respect to the argument that Dryden would not be suitable if modified to accommodate fluctuating volume such is not a limitation of the claims and as such is not required to be taught by Dryden therefore making Dryden of a thinner material is considered not to affect it's ability to be used in any application where more flexibility is required and as modified Dryden would meet the claimed language and one skilled in the art would expect such to be capable of use in the same manner as applicants as such would inherently be capable of that use.

especially when other structures exist which would add rigidity as set forth in the rejection above. With respect to the arguments directed at Gray that such would not see fluctuations in pressures such is not persuasive where a duct for forced air that is provided from a furnace type unit would fluctuate in pressure as the fan on the furnace goes on and off thereby finding itself in the same environment and exposed to the same type of changing pressure internal flow as a breathing circuit therefore it is known in the art to form a flexible tube wall of very thin material that is intended to be used with fluctuating pressures within. With respect to the argument about the teaching of any specific amount of reinforcement it is reiterated that the claims do not require a specific amount of reinforcement and that as set forth in the interview any amount of reinforcement provided regardless of how small meets the current claim language and would in some degree provide resistance to contraction along the length in that any member running the length of the tube will provide at least some resistance in compression based inherently upon the material having at least some longitudinal stiffness, and with no claimed amount of resistance any resistance meets the claim language, where one having ordinary skill in the art would expect the provision of a longitudinal structure in a tube would provide at least some resistance to contraction. With respect to the blind tube recitation, it is considered since the tubes end in the connectors that such are blind connections where such is not necessarily limited to a closed end situation without being claimed in this manner. With respect to the argument directed at Darling and



choice of mechanical expedients, there is not a specific reasoning provided that routine experimentation could not be used to select a specific thickness and why such is critical to the article, other than a discussion of conventional teaching which is not provided with any proof but is merely a statement being made which is not yet supported. With respect the argument directed at Darling, there are no specific reasons why a wall thickness of less than 50 microns is inappropriate therefore such is an unsupported statement. The discussion in column 1 lines 24-26 are not linked specifically to wall thickness as suggested by applicant and it is believed that such is representative of providing different reinforcements, therefore trying to link this statement to a discussion of representation of wall thickness is not appropriate when such does not say this specifically therefore such is not a persuasive argument. It is also not persuasive to read the statement in this manner when it seems to suggest that a "minimum requirement" exists for flexibility which means there is a specific of flexibility required and the thickness may affect this but other factors may as well, but at least this statement suggests that at least a specific minimum level of flexibility is required for its use as an aircraft oxygen line. It was also set forth in Darling in column 1, lines 66-77 that the article of Darling enables production of a "lightweight, minimal cost, stable conduit meeting all of the critical performance standards dictated by its use" which clearly suggests the examiner's position on making the wall thinner would reduce cost, as well as teaching the reduction of weight which a reduction in wall thickness would also provide, and the suggestion of meeting critical

performance standards also suggests at least some resistance to contraction especially when such is used for the same purpose of delivering oxygen to a mask for breathing same as applicants intended use. Therefore, Darling suggests the need for reduction in costs and meeting a minimum flexibility and the teachings of Gray are that flexible ducts for moving air with fluctuating pressures can utilize a thinner wall and still meet minimum requirements, where inherently making the wall thinner would reduce material costs and improve flexibility. As set forth above any reinforcement provided would provide some resistance to contraction, the argument that Darling or Dryden would not fluctuate in pressure is not persuasive when Darling is the same type of tube as applicants used in a breathing circuit, as is Dryden, and upon modification under the teachings of Gray would be capable of being more flexible. However, it is noted that a general statement such as Dryden and Darling do not contract due to their wall thickness is not persuasive when the references don't recite this, and applicant has provided no evidence to support this statement is true where one skilled in the art would know using common sense that fluctuations in pressure, and with no set amount or resistance to contraction, any amount would meet the claim language, where it seems as if applicants arguments are more representative of language that would include preventing collapse, but that with only claiming a resistance to implies that collapse is still possible and that the reinforcement merely provides at least some resistance to this collapse. The fact that the references are used for the same purpose, and have structure that

provides reinforcement inherently meets the claim language whether the references specifically state that the effect applicants argue is "non-existent", especially when the walls of Dryden and Darling are not set forth in the references to be rigid and therefore would not be exempt from the ability to contract along the length, and such would be able to do so under fluctuating internal pressure especially when such reaches a level that exceeds the ability of the material to resist it alone, and without any specific amount of internal pressure recited in the claim language or specific material properties for amount of reinforcement needed, any argument directed to the inability of a reference to meet an effect are not persuasive when that effect is not limited to any specific amounts of resistance or internal pressures. The applicants claim language does not recite a material property of the limb that "is sufficiently compliant that it contracts due to fluctuating pressure" as suggested in the arguments but rather the claim language directed to fluctuating pressure and contraction are directed toward an ability of the reinforcement and any longitudinal reinforcement structure such as a wire or tube would inherently provide this reinforcement with no degree suggested, it is not claiming a material property of the limb however, and as set forth above without a specific amount of internal pressure provided to cause the collapse any of the hoses are capable of contraction if the pressure fluctuation reached a high enough level to do so. It is also noted that the references need not be specifically designed for the same result as applicant's to meet the claim language and inherently provide the same properties as long as

such is capable of providing the same properties. The suggestion that the claim 1 is providing language that "clearly" is directed to a limb of a breathing circuit having "a very low bulk stiffness such that the its volume would change under fluctuating internal breath to breath pressure but for the claimed reinforcement" is not found in the claim language at all. For example, "very low bulk stiffness" is never recited, "volume" is never discussed, the fluctuating pressure is never set forth as "breath to breath" and it is not recited that the elongate reinforcing member is the only prevention against contraction, therefore this entire statement is not supported by the actual language of claim 1.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references to Moorman, Bixby, Boissin, and Haberl disclosing state of the art conduits.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James F. Hook whose telephone number is (571) 272-4903. The examiner can normally be reached on Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Shaver can be reached on (571) 272-4720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
James F. Hook  
Primary Examiner  
Art Unit 3754

JFH